Journal of Pediatric Surgery (2011) xx, xxx–xxx

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Journal of Pediatric Surgery

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Giant cecal diverticulum in a child☆

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Received 5 December 2010; revised 6 February 2011; accepted 8 March 2011

Key words:
Giant;
Cecal;
Diverticulum

Abstract A 12-year-old girl with abdominal pain and fever underwent urgent surgery. As was suspected on computed tomographic scan, a large diverticular mass adherent to the cecum was identified. A diverticulectomy was performed. We report this rare case of a giant cecal diverticulum and provide an overview of known literature.

Acute abdominal pain is a very common reason for consulting a pediatric surgical emergency care unit. However, the diagnostics and treatment can be challenging. Although appendicitis and Meckel diverticulum are frequent, there are more rare causes of abdominal pain that require surgical intervention. We describe the torsion of a giant cecal diverticulum in a 12-year old. Reports on this disorder in the literature are rare, and hence, this is the purpose of this submission.

1. Case presentation

A 12-year-old girl was referred to the surgical emergency care unit because of abdominal pain and anorexia for more than 24 hours. Nausea or vomiting was absent. There was mild alguria. Her stool was normal. There was no recent history of respiratory or other infection.

Physical examination revealed a body temperature of 38.8°C. She had a firm and tender abdomen with rebound tenderness, especially in the lower right quadrant. There was decreased peristalsis.

The laboratory findings showed a white blood cell count of 19,700 per microliter (reference values, 4500-13,000) and a C-reactive protein level of 6.4 mg/dL (reference values, 0.0-0.5). Liver and kidney function studies and urinalysis were normal.

On ultrasound examination, there was free fluid in the minor pelvis and the right paracolic region with a cystic mass noted in the right iliac fossa. The appendix was not visualized. In addition, there was dilation of what seemed to be a small bowel loop in the left upper flank.

Urgent computed tomography (CT) of the abdomen showed a dilated bowel structure, presumably originating from the ascending colon (Figs. 1 and 2) and extending superiorly to the epigastric region. This structure was 8.4 cm in diameter. Free fluid was present in the pouch of Douglas and the paracolic region.

Because of the clinical presentation and inconclusive imaging, the patient was taken to the operating theater. Laparoscopy was converted to an infraumbilical median laparotomy because of visualization of ischemic bowel. We discovered a giant diverticulum originating from the antimesenteric cecal wall (Fig. 3). This mobile thin-walled structure of 116 g measured 30 cm in length and 7 cm in diameter at its broadest point. At its base, there was a 3-fold

☆ The authors have nothing to disclose.

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0022-3468/$ – see front matter © 2011 Published by Elsevier Inc.
doi:10.1016/j.jpedsurg.2011.03.010

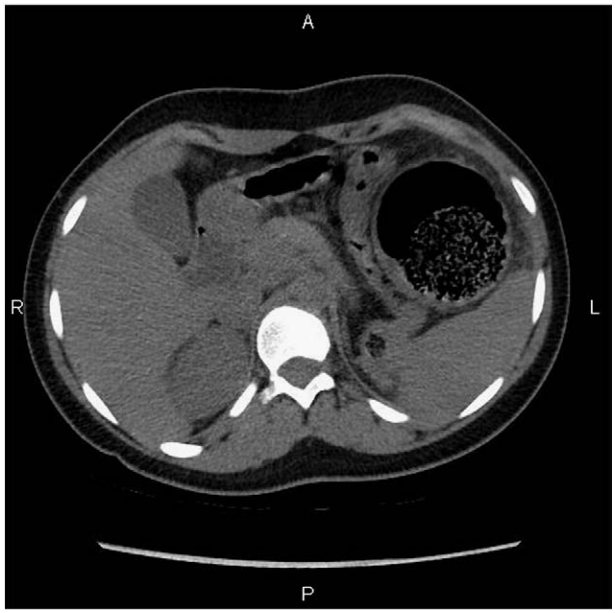

Fig. 1 Transversal CT scan image with a dilated mass in the left hemiabdomen.

torsion around its axis with resulting ischemia. A diverticulectomy was performed with a mechanical stapler after detorsion at the base (Fig. 4). The staple line was oversewn with an absorbable polyfilament suture (3-0 polydioxanone). The appendix was macroscopically normal and was also resected.

Histopathologic examination of the lesion found colonic mucosa, submucosa, muscularis, and serosal tissue consistent with a true diverticulum. The mucosa appeared ischemic. The appendix had a normal microscopic appearance and contained a fecalith.

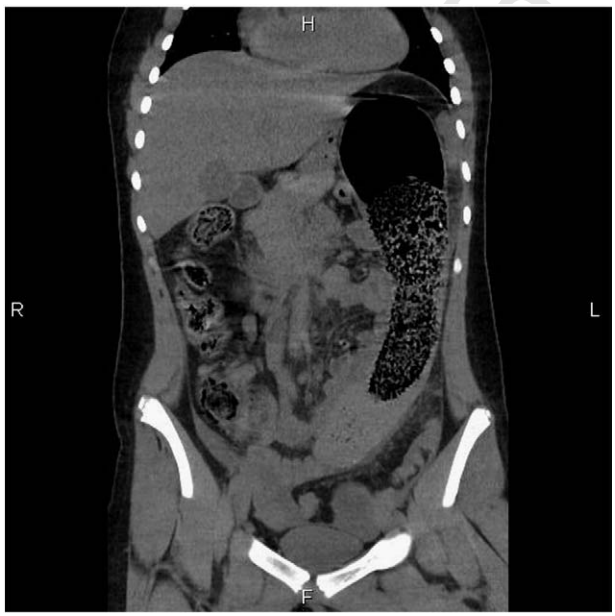

Fig. 2 Coronal CT scan reconstruction image with a large dilated bowel loop originating from the right iliac fossa.

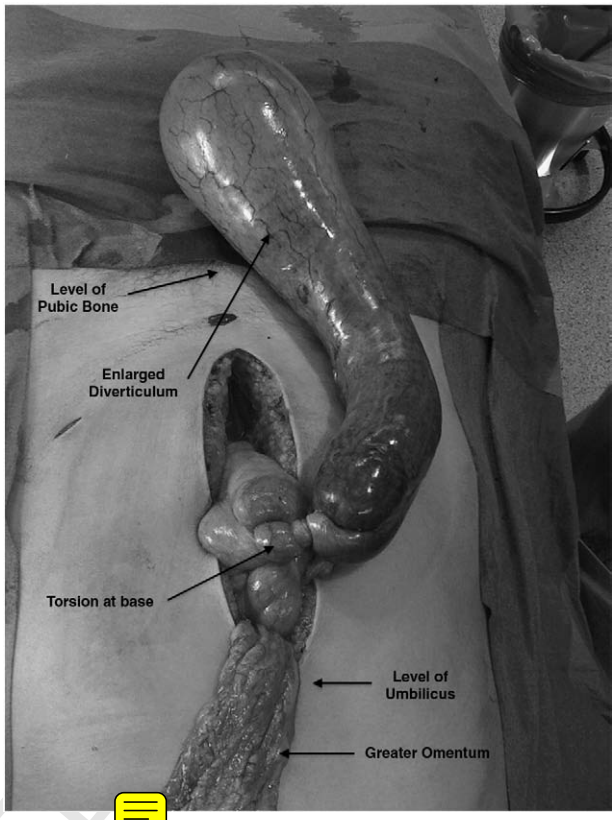

Fig. 3 Perioperative view of the cecal diverticulum. Its length was 30 cm.

The patient recovered uneventfully. There was a rapid recovery of peristalsis and peroral feeding was initiated 1 day after the procedure. She was discharged after 4 days and was doing well when she was seen at the outpatient clinic at 6-months follow-up.

2. Discussion

Cecal diverticulum was first described by Potier in 1912 [1]. It can be manifested by inflammation [2,3] and perforation [4,5]. A solitary cecal diverticulum is a rare entity [6]. Giant cecal diverticula have not been categorized in the literature; however, a sigmoid diverticulum is called "giant" when its size is larger than 4 cm [7]. Sardi et al [8] described a series of 881 cases. The age of patients ranged from 20 to 51 years. There was a male-female ratio of 3:2. Although the etiology of a solitary cecal diverticulum is uncertain, a congenital origin is widely accepted [9]. We found only a few case reports of cecal diverticula in children [10-12]. A cecal diverticulum should be separated from cystic duplications. These lesions are also rare. In an article of 2001 [13], only 18 reports in the English literature are mentioned. Thirteen percent of all alimentary tract

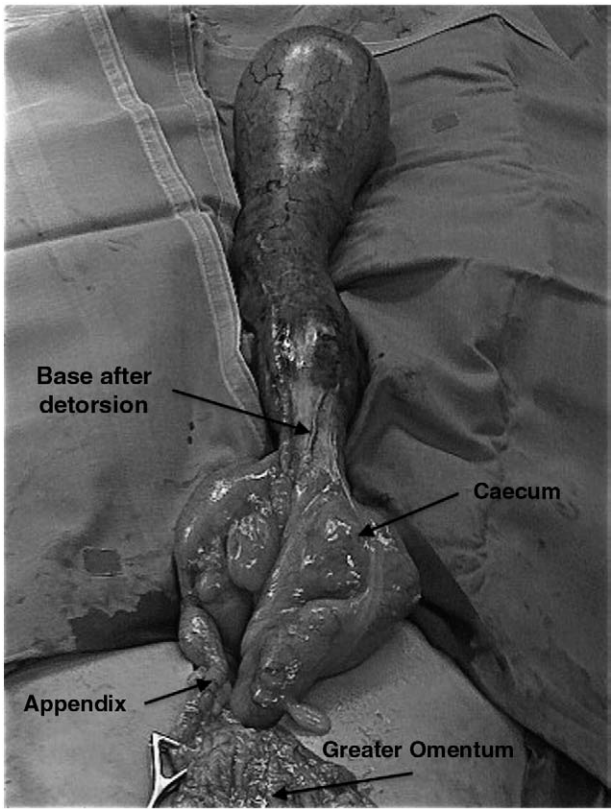

Fig. 4 Perioperative view after detorsion of the diverticulum with presence of appendix.

duplications are colonic [14]. These congenital lesions are histologically identified by the presence of a well-developed coat of smooth muscle and intestinal epithelial lining. Thirty percent contain ectopic gastrointestinal mucosa. In contrast to diverticula, cystic duplications are mainly found on the mesenteric side of the bowel [15]. In duplication cysts, communication between the cyst and normal bowel lumen is not always present. A cystic duplication can be the cause of bowel obstruction [16], whereas a diverticulum more often shows perforation and inflammation. In our case, we performed a diverticulectomy with a mechanical stapler after detorsion of the diverticulum (Fig. 4). In most reports, a right hemicolectomy is performed because of suspicion of malignancy [2,6] or extensive diverticular and peridiverticular inflammation. A localized resection with preservation of the ileocecal valve is an option if the surrounding tissue is viable [17], as was performed in this case.

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